

CLAIMS

1. Apparatus for supporting during a testing operation a leadframe formed with at least one row of non-singulated semiconductor devices, comprising a main body and a leadframe support member, wherein said leadframe support member is formed with at least one groove for receiving said semiconductor devices such that in use leads extending from said devices lie on a surface of said support member.
2. Apparatus as claimed in claim 1 wherein said leadframe support member is formed with a plurality of parallel grooves.
3. Apparatus as claimed in claim 1 further comprising means for releasably gripping a said leadframe so as to hold said leadframe in place.
4. Apparatus as claimed in claim 3 wherein said gripping means comprises a pair of gripping members disposed on respective sides of said groove.
5. Apparatus as claimed in claim 4 wherein means are provided for moving said gripping members into and out of engagement with a said leadframe.
6. Apparatus as claimed in claim 5 wherein said moving means is actuated a compressed air.

7. Apparatus as claimed in claim 6 wherein a plurality of pairs of gripping members are provided, and wherein said compressed air is provided directly to one said pair and is distributed to the other said pairs by an air distribution assembly formed in the main body.

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8. Apparatus as claimed in claim 3 wherein said gripping means extends through apertures formed in said leadframe support member.

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9. Apparatus as claimed in claim 1 wherein said main body is formed with locating pins for locating the leadframe support member on the main body.

10. Apparatus as claimed in claim 1 wherein said main body is formed of a conducting material and is provided with means for electrically grounding the main body.

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11. Apparatus as claimed in claim 1 wherein the leadframe support member is formed of a high resistivity electrically insulating material.

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12. Apparatus as claimed in claim 1 wherein said main body is provided with identification means.

13. Apparatus as claimed in claim 1 wherein said main body is formed with means for coupling said main body with a transport mechanism.

14. Apparatus for testing non-singulated semiconductor devices formed on a leadframe with unformed leads extending from said devices, comprising:

(g) carrier means for carrying said leadframe,

5 (h) a loading position at which a leadframe is loaded on a said carrier,

(i) means for transporting a loaded said carrier to and from a testing means,

(j) means for supporting said leads during a testing operation,

(k) means for removing said leadframe from said carrier after testing, and

10 (l) means for returning an unloaded said carrier to said leadframe loading position.

15. Apparatus as claimed in claim 14 wherein said transporting means transports said carrier in a first horizontal direction, and wherein said returning means comprises
15 means for transporting said unloaded carrier in a direction opposite to said first direction and at a height below said first direction.

16. Apparatus as claimed in claim 15 wherein said loading station is at the same height as said returning means and wherein means are provided for elevating a
20 loaded carrier to said transporting means.

17. Apparatus as claimed in claim 15 wherein means are provided for receiving a carrier at the end of said transporting means and for lowering said carrier to said returning means.

5 18. Apparatus as claimed in claim 14 wherein said carrier means comprises a main body and a leadframe support member formed of electrically insulating material.

19. Apparatus as claimed in claim 18 wherein said leadframe support member is formed with at least one groove for receiving said semiconductor devices such
10 that in use leads extending from said devices lie on a surface of said support member.

20. Apparatus as claimed in claim 19 wherein said leadframe support member is formed with a plurality of parallel grooves.

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21. Apparatus as claimed in claim 14 wherein said carrier means further comprises means for releasably gripping a said leadframe so as to hold said leadframe in place.

20 22. Apparatus as claimed in claim 19 wherein a said carrier means further comprises means for releasably gripping a said leadframe so as to hold said leadframe in place

23. Apparatus as claimed in claim 22 wherein said gripping means comprises a pair of gripping members disposed on respective sides of said groove.
24. Apparatus as claimed in claim 23 wherein means are provided for moving said gripping members into and out of engagement with a said leadframe.
25. Apparatus as claimed in claim 24 wherein said moving means is actuated a compressed air.
26. Apparatus as claimed in claim 25 wherein a plurality of pairs of gripping members are provided, and wherein said compressed air is provided directly to one said pair and is distributed to the other said pairs by an air distribution assembly formed in the main body.
27. Apparatus as claimed in claim 22 wherein said gripping means extends through apertures formed in said leadframe support member.
28. Apparatus as claimed in claim 18 wherein said main body is formed with locating pins for locating the leadframe support member on the main body.
29. Apparatus as claimed in claim 18 wherein said main body is formed of a conducting material and is provided with means for electrically grounding the main body.

30. Apparatus as claimed in claim 18 wherein said main body is provided with identification means.

31. Apparatus as claimed in claim 18 wherein said main body is formed with means
5 for coupling said main body with said transporting means.

32. A method for testing non-singulated semiconductor devices having unformed leads extending therefrom and being formed on a leadframe, comprising locating said leadframe on a support surface of a carrier such that said leads lie flat on said
10 support surface, transporting said carrier to a testing means, testing said devices while said leads remain flat on said surface, transporting said carrier away from said testing means, and removing said leadframe.